

# The Athenian Mercury:

Saturday, January 28. 1693.



Quest. 1. **W**Hat's the reason of the Mercury's ascending in the Glass Tube always in fair Weather, and descending in rainy Weather? If you can demonstrate it to be some unequal pressure of the Atmosphere, I ask further, How a Column of the Atmosphere can weigh as much thro' the Roof of a House, Chambers and all, as in the open Firmament, when nothing interposes?

Ans. This is a Noble Question, and if Answer'd fully and intelligibly, as it shou'd be, will remove the prejudices with which some of our later Philosophers have embarrass'd it withal. This Question has properly two parts, neither of 'em inconsiderable, We shall consider the first of 'em in its place: But first of all we must premise, That in all Bodies there's a twofold Weight, one *Specific*, the other *Individual*; by *Specific* we mean that weight which every Body has in it self, comparatively to another Body of the same Bulk: For example, a piece of Gold bears such proportion in weight to a piece of Lead of the same bigness, as 100 to 60  $\frac{1}{2}$ : By *Individual* weight, we mean Bodies which are of the same Weight when weighed in a pair of Scales, as a pound weight of Iron is as heavy as a pound of Wool, altho' their Bulks be very unproportional. Of this last Weight we shall consider the Air, and we find by the Experiments that have been lately made, that *Quicksilver* is about 14000 times heavier than the Air, from whence it will follow, that a Column of Air, equal in thickness to a Cylinder of *Quicksilver*, must be 14000 times as long as that Cylinder of *Quicksilver*, to ballance or Counterpoize it. But for the use of a few, before we show after what manner it counterpoizes the *Quicksilver*, we ought to give such an Account of the Weather-glass, as perhaps every one has not had either the Opportunity, or Curiosity to acquaint themselves with. The Tube of Glass which contains the Mercury, is hermetically seal'd up at the one end, and then the Mercury put in by a little at a time, that the Air in the Tube may be at liberty to come out; for if it were put in as fast as the Tube wou'd receive it, it wou'd compress the Air in it like an Air-gun, and by consequence not come to the Bottom; and the *Quicksilver* being once in, and of a very close Body, (as is manifest by its weight) it keeps the Air from getting betwixt it and the top of the Tube when it subsides, and by this means there's no Column of Air to weigh the *Quicksilver* down, besides its own natural Gravity. At the bottom of this Tube is plac'd a sort of a Cistern, which has such a Communication with the Tube, that there is form'd a kind of a Natural Balance; for the Column of Air which presses upon the Cistern counterpoizes the *Quicksilver* in the Tube, and when the Atmosphere is very heavy, the *Quicksilver* mounts up, as the lighter Scale always does by the drawing of the heavier; and when the least weight is subtracted from the pressure of the Atmosphere, the Silver prevails, and sinks lower.

But the Difficulty yet recurs, Why does the *Quicksilver* fall low when the Air is very full of Rain and Clouds, and therefore apparently shou'd be the heavier. To this We Answer, That 'tis a Mistake, and it will appear so, if we consider, that Vapours which are much lighter than the Air, do therefore rise upwards when the Air thrusts under 'em; (which by the by discovers the Vulgar Error of their being drawn up by the heat of the Sun) and these being added to the weight of the Air, must necessarily make the Atmosphere heavier wheresoever there be any opposite Wind to drive 'em together; and so condense 'em into thick Clouds; or whether they exspatiate, being rarified by heat, for they are yet the same Weight, altho'

in a more extended and larger Compass. Now if we suppose 'em by the extremity of Cold to contract themselves, or by the contrariety of Winds to be justled into thick Clouds, it will only follow, that the same Individual Weight is now in a lesser room, and the pressure of the Atmosphere the same, for its all one, whether a fleece of Wool be weigh'd loose, or straitty'd up. But it will be yet *Objected*, That Experience seems to contradict this, since before any Rain falls, when the face of the Sky is very cloudy and dull, the *Quicksilver* does actually subside: To this we Answer, That tho' it does not Rain immediately in such or such a County, yet it certainly does in some Neighbouring one or other, perhaps within 30, 40, or 50 Miles, and the Air being fluid, it soon retires to these places (that is, where Rain is falling) and thereby takes off from the pressure of the Atmosphere, where no Rain had yet fallen, which therefore has the same effect upon the Mercury, as if so much Rain had actually fallen where it was expected, and where the Mercury actually subsides, and this we hope does fully solve the Case.

As to the latter part of the Question, which asks, How the Air can weigh as much in an House, thro' Roof, Chambers and all, as in the open Firmament: We Answer, It weighs not thro' the Roof of the house; but being a fluid Body, it makes its passage thro' doors, Windows, &c. and is as hard crowded there, and by consequence must weigh as much as in the open Firmament. That 'tis as close crowded in a House, as abroad, is plain enough. We'll suppose the Air to be Water, as deep as the Atmosphere is high, continually upon motion, by flux, reflux, &c. there's no one cou'd be so silly as to imagine, that it wou'd not find the way into Houses, without sinking through the tops of 'em; for the Air (if we suppose any in the Houses) would not be able to resist the impulse of the Water, since the Columns of Water being press'd on every side by other Columns, and above by their own Weight, could not find the like resistance from the Air in the House as amongst themselves, and therefore must enter into the House. Now Air being more fluid, we can't suppose it less able to get into Houses than Water: If it be *Objected*, That tho' it gets in, it follows not that it must be crowded as we pretend; We Answer, That if the Air in the House was not as close crowded together by the pressure of the Atmosphere, as that in the open Firmament, it would follow, that the weaker and looser Air in the House made as strong an Effort upon the compressing Air without the House, as that upon it, which is as absurd as this Position. That the weaker is able to repel the stronger: Now if the Air be as close crowded within, as without, those particles that are next to the Ceiling, must make the same resistance against the Ceiling, or Floor, as a Column of Air without the House, just so high, does make against its superimposed Column, and no more: But the resistance of any two Bodies, where neither gets ground, is mutually equal; therefore the Ceiling presses as much upon the Air in the House, as a Column of Air from the top of the Ceiling to the top of the Atmosphere, wou'd press upon a Column of Air just so high as the Ceiling, and by consequence the Ceiling together with that Column of Air which is just over the Cistern of the Weather-glass, presses as hard upon the Air in the Cistern, as a direct Clindric Column of Air in the open Firmament wou'd do, which was to be demonstrated.

Quest. 2. In our late Civil War a Trooper was surprized by two Troopers of the adverse Party, but had just time enough



to fly from them on foot; in his flight he met a young Woman whom he knew, and told her his danger; a little after the two Persuers met her, asking her which way the Souldier went, withall threatening his Life; she (with a good Presence of Mind) directed them the contrary way, which they took, and thereby in probability saved his Life — Query, Whether the seeming Lye of the Womans was Criminal, and a sin before God?

Ans. Had the young Woman told truth, she had been accessary to Murder; but she could not properly have been said to tell a Lye, for a Lye is that which is spoke with an Intention to deceive: Now to be deceived, does suppose that the Person deceived is thereby necessitated to be disappointed of some Truth: But that every Wickedness and Sin is a Lye, is plain, because 'tis contradictory to Truth, we mean, God himself, and therefore the Scriptures speak of all Men being Lyars, that is finfull: But in this sense, which is the most proper, she did not deceive the Troopers, but endeavour'd the contrary, by inducing them to abstain from Murder, that is from a Lye, as we said above; and 'tis no matter what Words she used to effect such a good End. But after all, should we have suppos'd her to have told a Lye in the sense usually taken, it won't yet follow that she was guilty of Sin, since she was necessitated to be accessary to Murder or to do it, and of two Evils if we choose the least, it is no longer an evil comparatively to the other, tho' it might compar'd with something else, so that every way we think her innocent and commendable.

Quest. 3. A Person of some Estate and Family having had High Treason sworn against him, though falsely and maliciously, so that inevitably he must dye for the same, and his Family ruine, meeting this Man on the Road, and having a fair opportunity, falls on and kills him, in hopes to prevent that which would otherwise inevitably befall himself: Query, If this Man is guilty of Murder before God? your Answer is desired in the next?

Ans. To dye is not an evil in its self, since it is every good Man's Interest, and to dye unjustly is much less an Evil, since there's a particular Promise to such as are Persecuted and suffer unjustly: Now if I may not do an ill Action (as Murder is perhaps the greatest, next after Idolatry) that good may come of it, much less may I do an ill Action to avoid that which is not ill in it self: So that our Answer is in the Negative.

Quest. 4. There is a young Man that was brought as a Suitor to me, and my Father not Complying he Courted my Servant, and says that he will have her, although his Friends are against it; now if he will have me, my Friends will give him the Portion which he said he would have, which was three thousand Pounds Sterling, now our Friends and he will agree to your Answer; pray let us have it next Saturday, and let Equity be done?

Ans. Alas poor Lady! 'tis pity you should want a Husband, or a Preferment above your own Maid: But how shall we help you, or do you Equity? how can your Friends agree to our Answer, if the Gentleman will not? we'll give you our Vote of Preferment, and believe you to be Rich and Witty, Pious and Pretty, and your Maids Mistress into the Bargain. We know of no other Method, unless you can periwade the Gentleman to become a Member of our Society, and then we can force him to a Compliance, since the most Votes will carry it.

Quest. 5. Not long since I happened to be at a merry Meeting, at which time I was taken (of a suddain) with a Melancholly Fit, insomuch that I abhorred all Mirth, and went home, where when I came, I found (to my great Grief) my Mother dead, and upon Examination I found that she dyed (as nigh as I could guess) at that same instant of time that I was taken with that Fit: Query, Whether this proceeded from any Natural Cause, or otherwise, is my Humble Request?

Ans. This Question will receive its full Answer very speedily, amongst several others of like Nature that were lately sent us by a very Ingenious Hand, occasion-

ed by a Passage in the Book entituled *The Tryal and Condemnation of several Witches in New-England*: The Passage is that of the Man's appearing to his Brother in Boston in New-England, the same Moment he was Murder'd here in London.

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